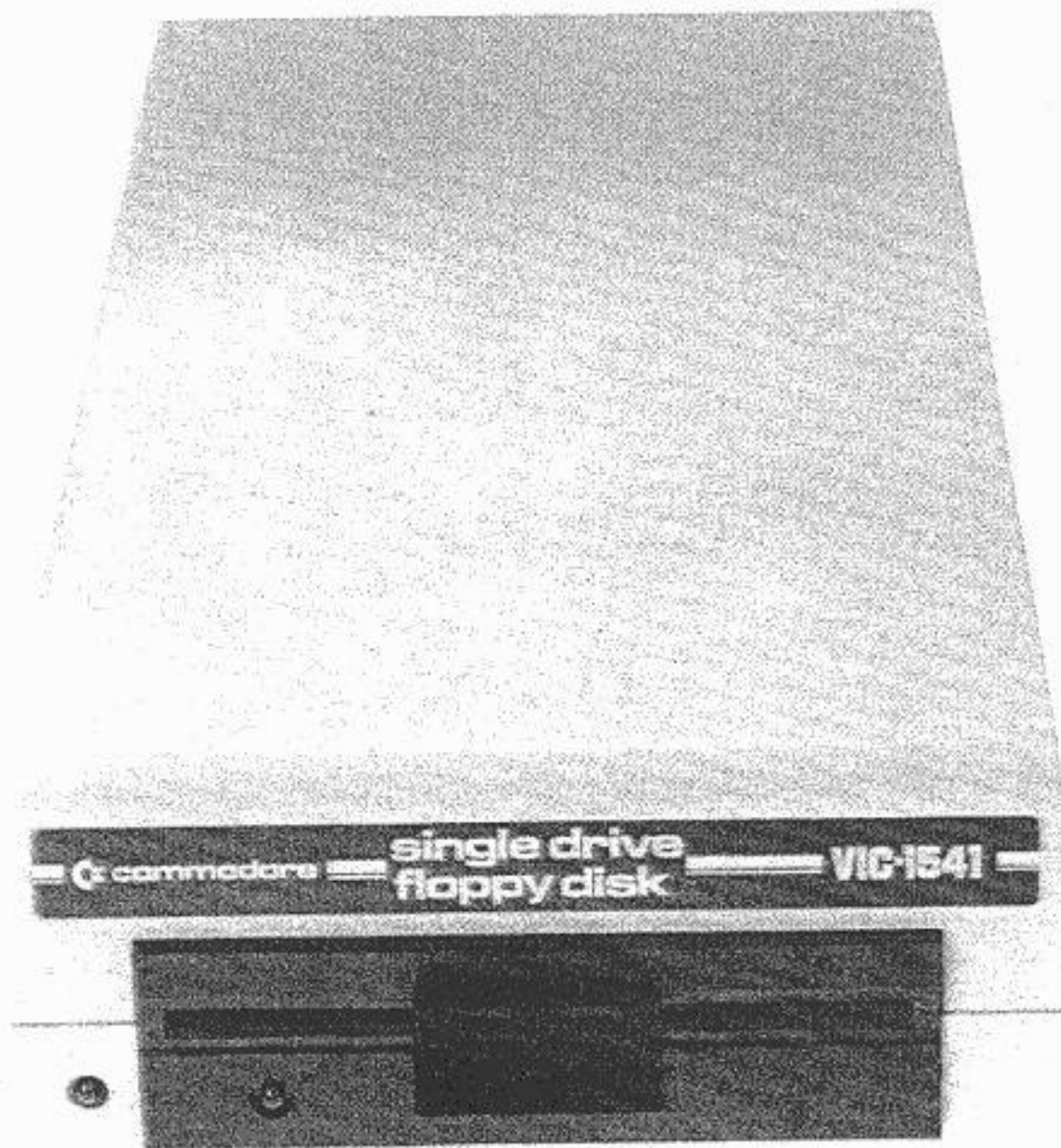


Commodore Single Disk Drive

Technical Manual

Model 1540/1541



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COMPUTER

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Chapter One

1.1 Scope

In this chapter, a description is made of the procedures necessary for servicing the Model 1540/1541 Floppy Disk Drive.

1.2 Unpacking

Special care should be exercised during unpacking not to damage the unit.

Unpacking procedures are as follows:

- a) Remove cardboard sleeve from styro-foam box
- b) Open 'styro-foam' box and remove drive
- c) Check the drives front door for proper operation

```
*****
*                                     *
*               Caution             *
*                                     *
*   Do Not Use Magnetized Tools   *
*                                     *
*****
```

1.3 Protection against noise

A weak signal from the media is detected in the head section of the drive. Hence, do not install the drive near a TV set or other areas where electromagnetic noise is generated. (i.e. motors, air-conditioners, etc)

1.7 Input/Output Cable

The length of the cable between the host and the drive (between the host and the last drive when the drives are daisy chained) should not exceed 5 meters (16 feet).

1.8 DC power source

The drive is powered by a internal power supply providing the drive with +12V and +5V.

1.9 Initial inspection

The drive can be briefly inspected for its operation by the following procedure. Install the drive, connect the power and I/O cables. Turn drive on and make sure the front panel power lamp is on. Proceed to step 2.2.

1.10 Outline of functions

The 1540/1541 Minifloppy Disk Drive mechanism is composed of the data read/write head, track positioning mechanism, spindle drive mechanism and eject mechanism.

1.11 Read/Write Head

The Read/Write head uses a glass-bonded, ferrite/ceramic head. Track-to-track erasing is accomplished by the straddle erase method. The surface of the Read/Write head is mirror-ground to minimize wear of the head and media. Also, the head is designed in such a way that the maximum signal can be obtained from the media surface.

1.12 Track positioning mechanism

Positioning of the Read/Write Head is accomplished by a stepping motor and steel belt. The stepping motor rotates clockwise or counter-clockwise by two steps per track. The control circuit on the logic board selects the direction and number of step to the desired track.

1.13 Spindle drive mechanism

The spindle drive motor operates on 12 VDC and turns the spindle, through a belt drive, at 300 revolutions per minute. The speed of the drive motor is controlled by a feedback signal from a tachometer which is housed in the drive motor assembly. The feedback signal controls a servo amp that supplies the 12 VDC drive current.

1.14 Eject mechanism

When the media is inserted in the Disk Drive and the door is closed the media is clamped by the spindle and hub. At this time the ejector mechanism is loaded by the insertion of the disk and locked. When the door is opened, the ejector mechanism is unlocked and the media pops out of the door.

2.1 Mechanism Explanation

The 1540/1541 mechanism is installed in the system horizontally, however the drive will function if mounted vertically. The mechanical parts of the drive include an aluminum chassis, a stepping motor, head positioning assembly, drive motor, a hub and spindle assembly for centering and retaining the media during operation. The magnetic head is of a glass ceramic construction.

2.2 Function explanation

The drive is itself an independent memory device. The drive is composed of a media clamp rotating mechanism, ahead positioning mechanism and an eject mechanism. When the front door opens, the media can be inserted. All positioning operation excluding insertion and removal of the media are controlled by the internal guide mechanism. Closing the front door causes the media clamp mechanism to operate. Two operations are performed in the following order:

- a) The media is centered.
- b) The media is clamped and retained between the spindle and the hub.

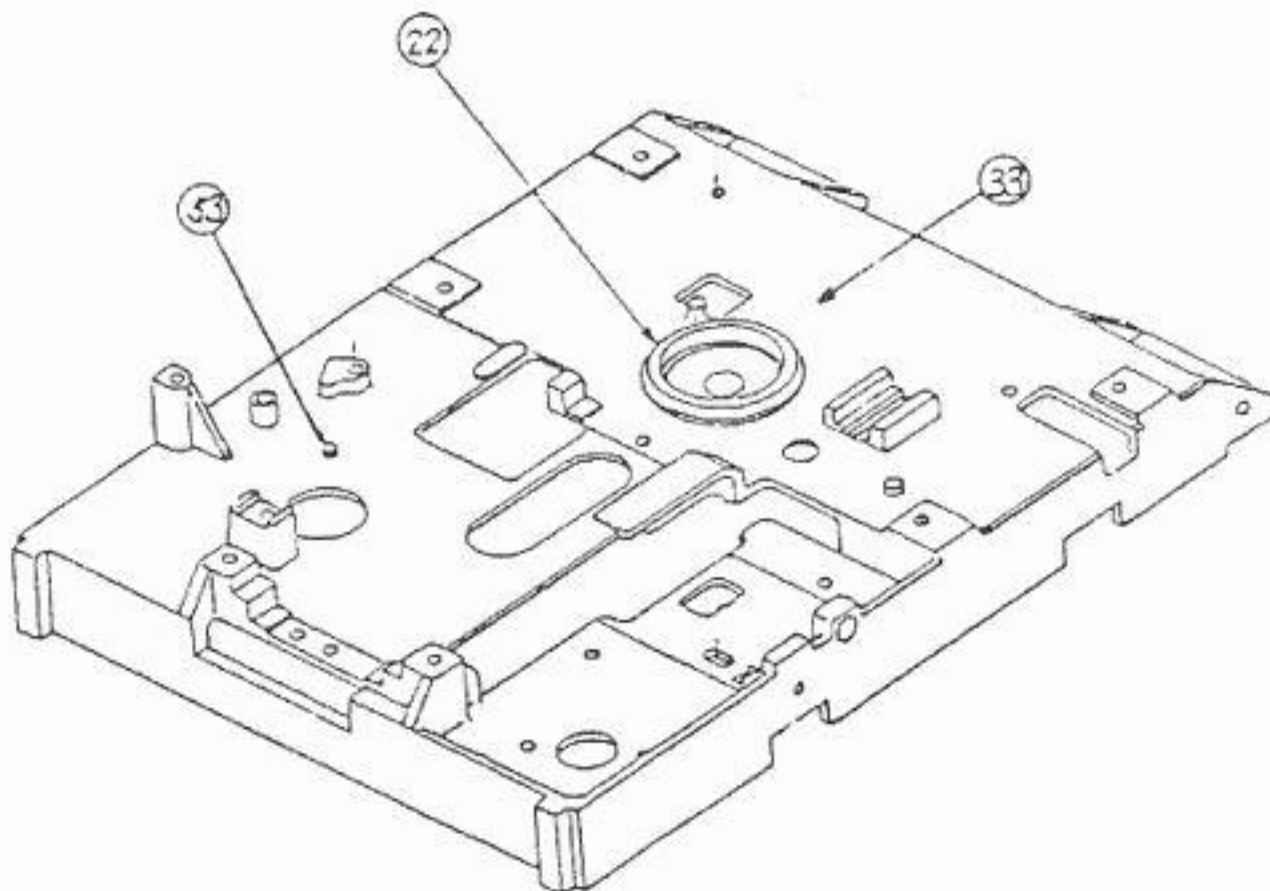
The spindle and hub rotate at 300 r.p.m. through a closed-loop control circuit employing a D.C. motor/tachometer. It is important that the relationship between the head and the media is maintained correctly during operation. For this purpose, a pressure pad is used to hold and press down the media (about 12g) from the opposite side of the head, to maintain the correct contact with the head. This head assembly is coupled by a metal band to a four phase stepping motor the performs the track positioning. One step of the stepping motor corresponds to a 1/2 track movement. Use of a high-speed stepping motor and metal band drive, this series of disk drives can perform access operations at a very high speed.

2.3 Assembly Procedure

- 2.3.1 The housing assembly; install the eject pin and the spindle.
- 2.3.2 The housing assembly; on the reverse side install the spindle pulley.

2.3.3 FIG 1, The housing unit.

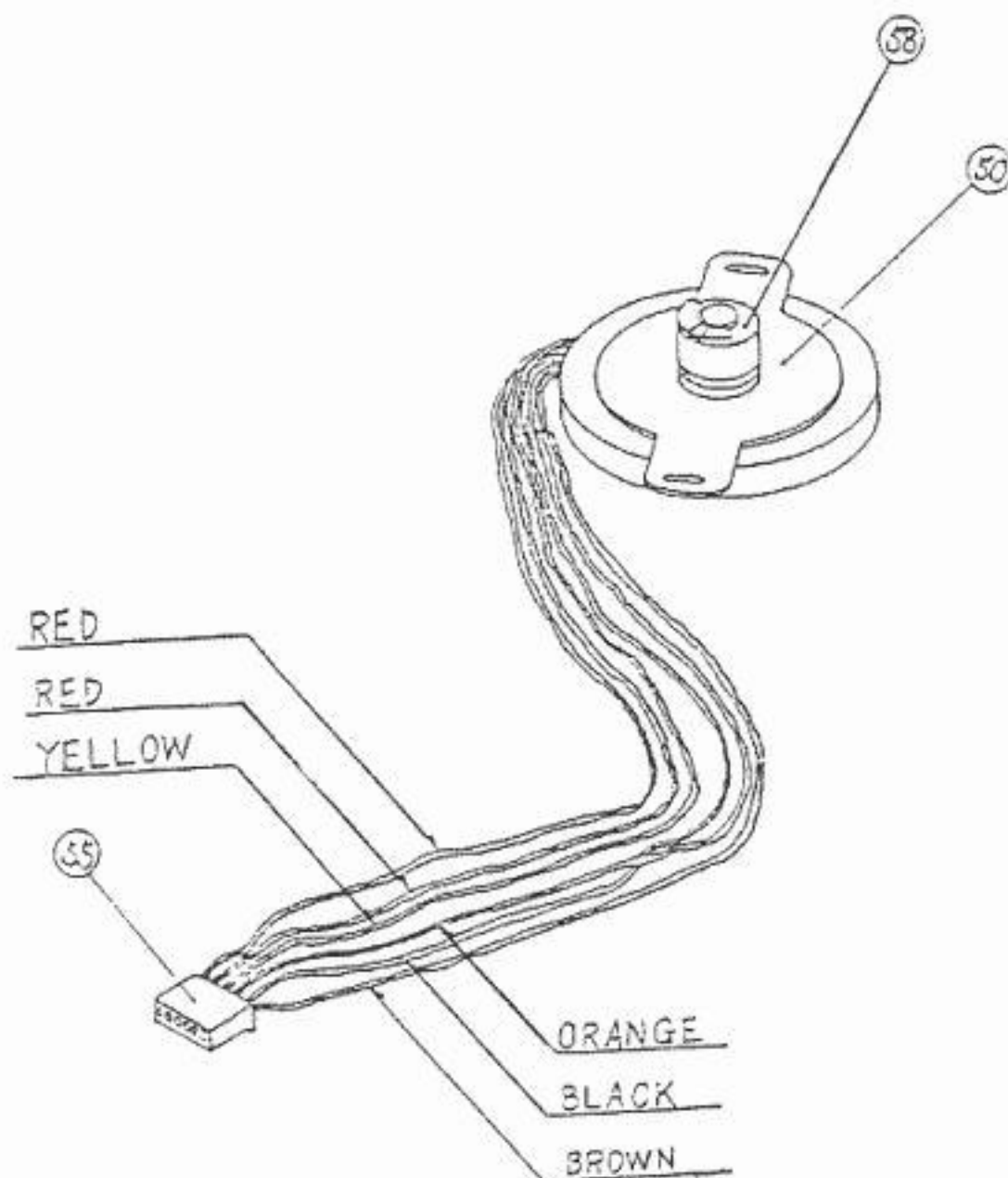
Part	Description
22	spindle
33	housing assembly.
53	eject pin



2.3.4 The stepping motor assembly; install the stepping pulley.

2.3.5 FIG 2, The stepping motor unit

Part	Description
50	stepping motor assembly
55	connector housing
58	stepper pulley



2.3.6 The D.C. motor assembly; install the motor pulley.

2.3.7 FIG 3, D.C. motor and control PCB

Part	Description
44	motor control PCB
48	D.C. motor
51	connector housing
59	D.C. motor pulley

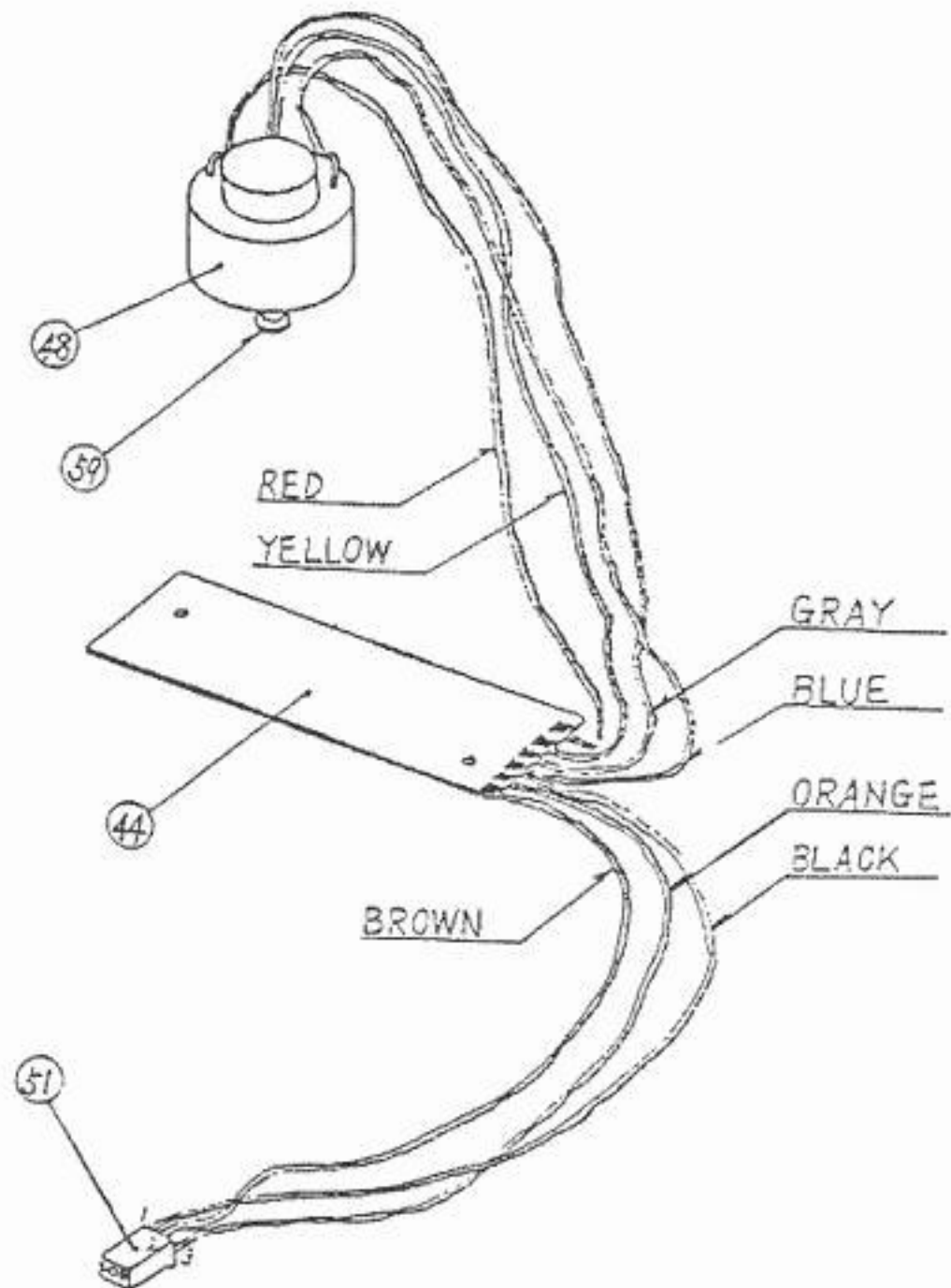


FIG. 6

Part	Description	Part	Description
20	binder screw	37	washer
21	diskette guide	38	eject spring
28	LED clamp	39	eject plate
29	front panel	40	slider
30	Flush screw	43	diskette guide
31	LED assembly	52	connector housing
32	LED holder ring		

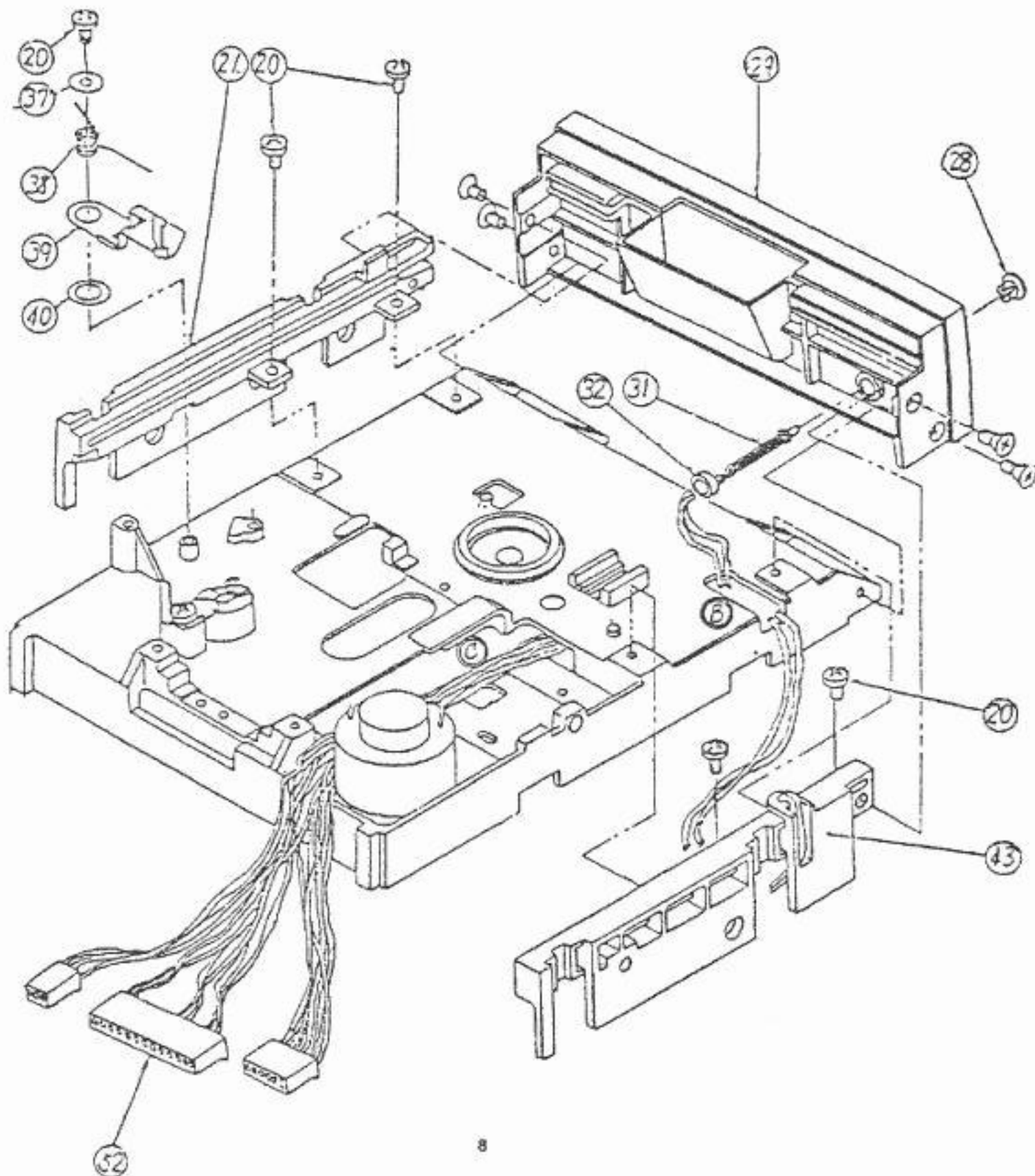


FIG 7.

Part Description

- 15 binder screw
- 18 binder screw
- 24 tension pulley
- 25 guide shaft keeper
- 26 guide shaft
- 34 metal band
- 35 washer
- 36 head assembly
- 56 tension spring

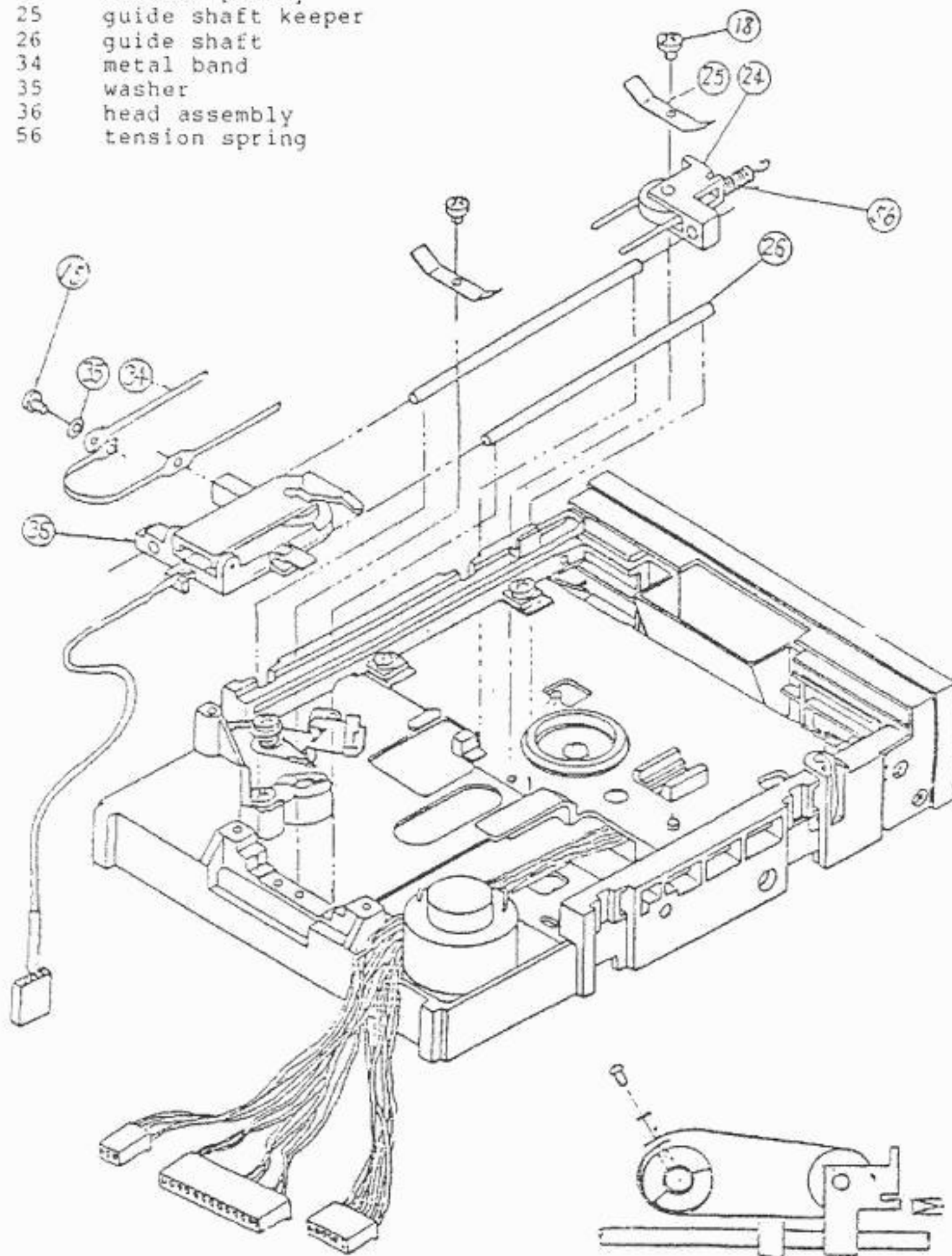


FIG 8

Part	Description
20	binder screw
45	cable clamp
49	cable ties

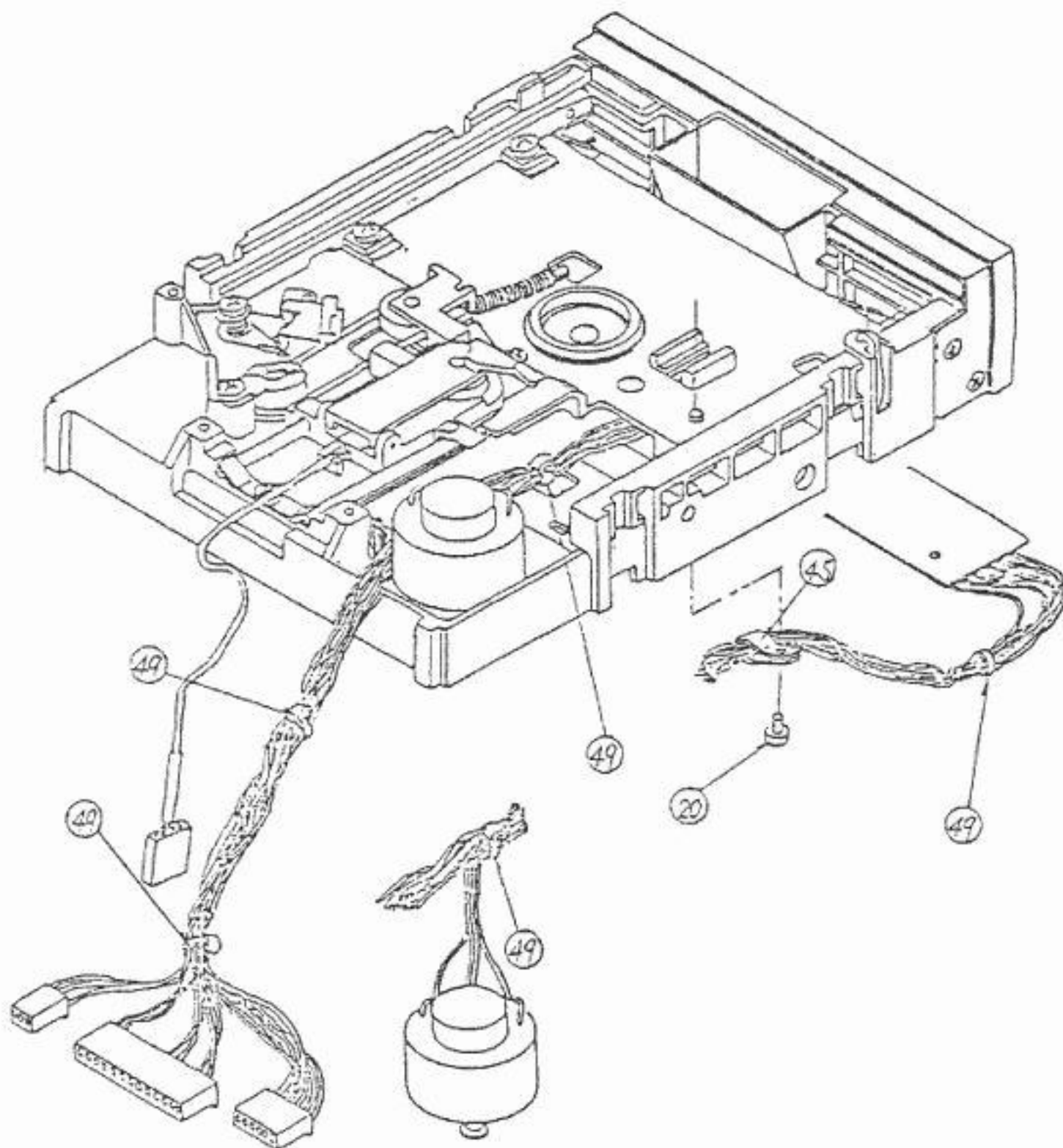
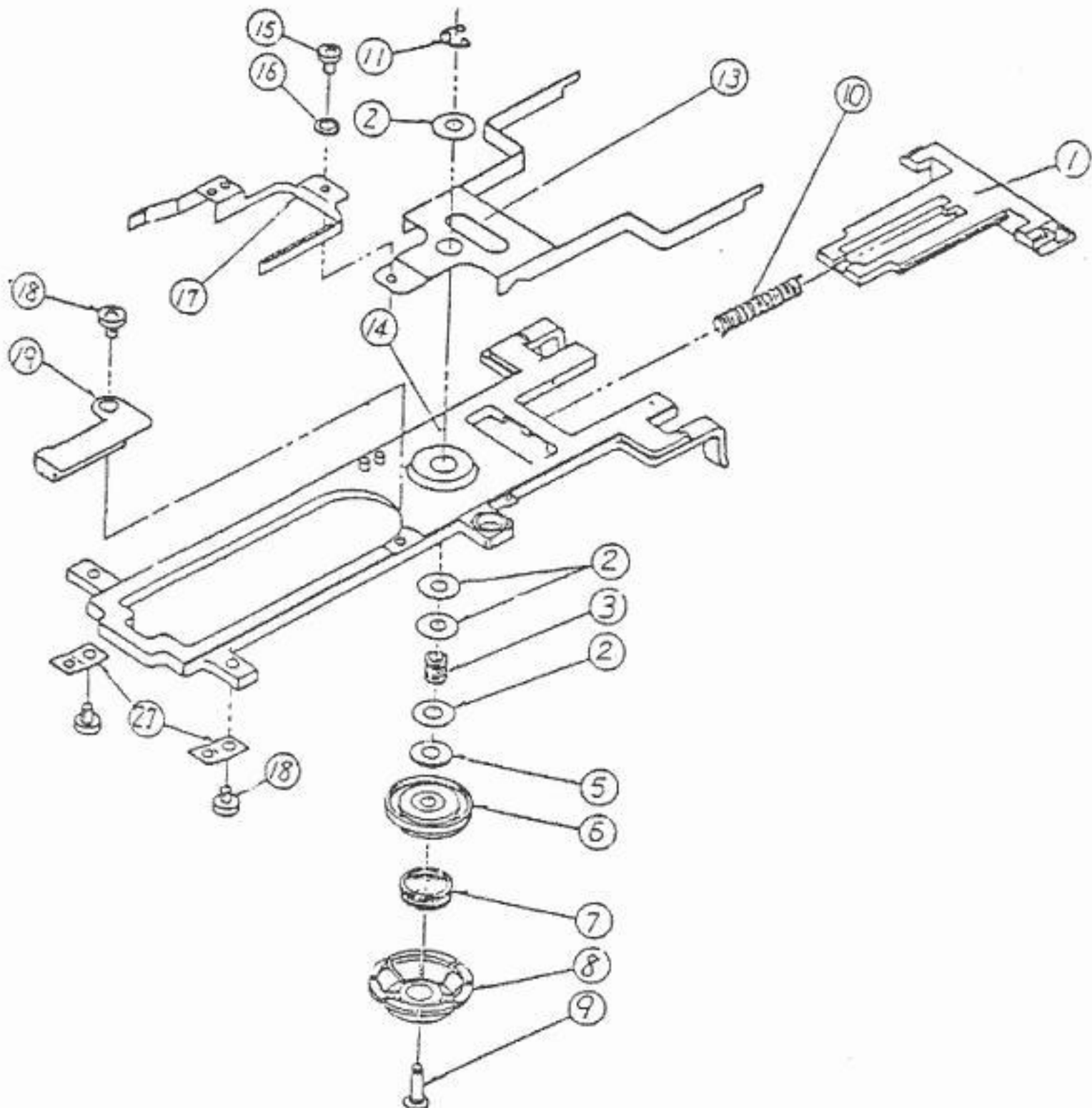


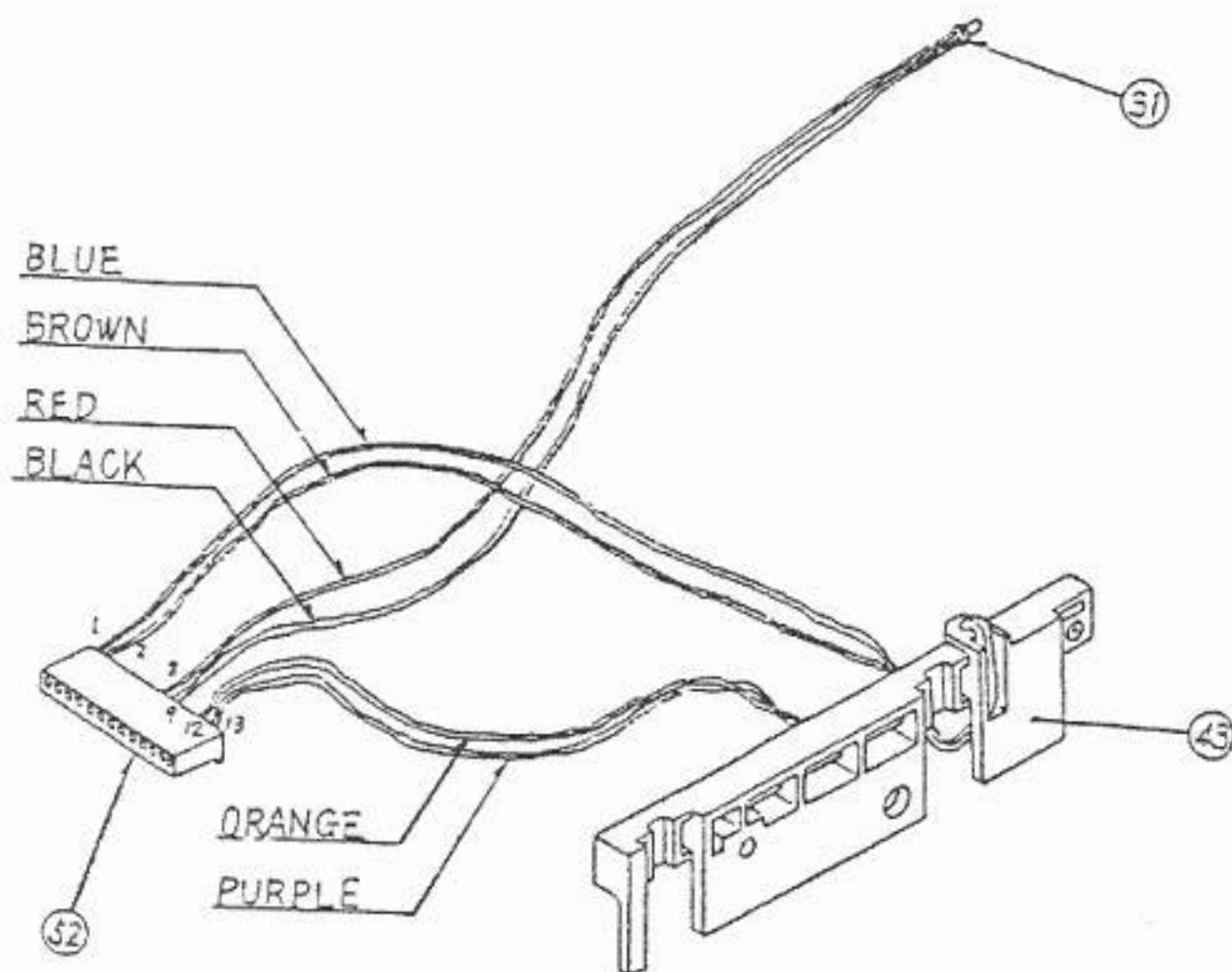
FIG 9

Part	Description	Part	Description
1	door assembly	13	hub support
2	collar	14	hub frame
3	clamp spring	15	binder screw
5	thrust washer	16	spring washer
6	collet assembly	17	arm support assembly
7	hub spring	18	binder screw
8	hub	19	pad plate assembly
9	hub shaft	27	hinge spring
10	door spring	60	collet
11	E-washer	61	collet bearing



2.3.8 FIG. 4, Diskette guide, LED assembly and connector housing.

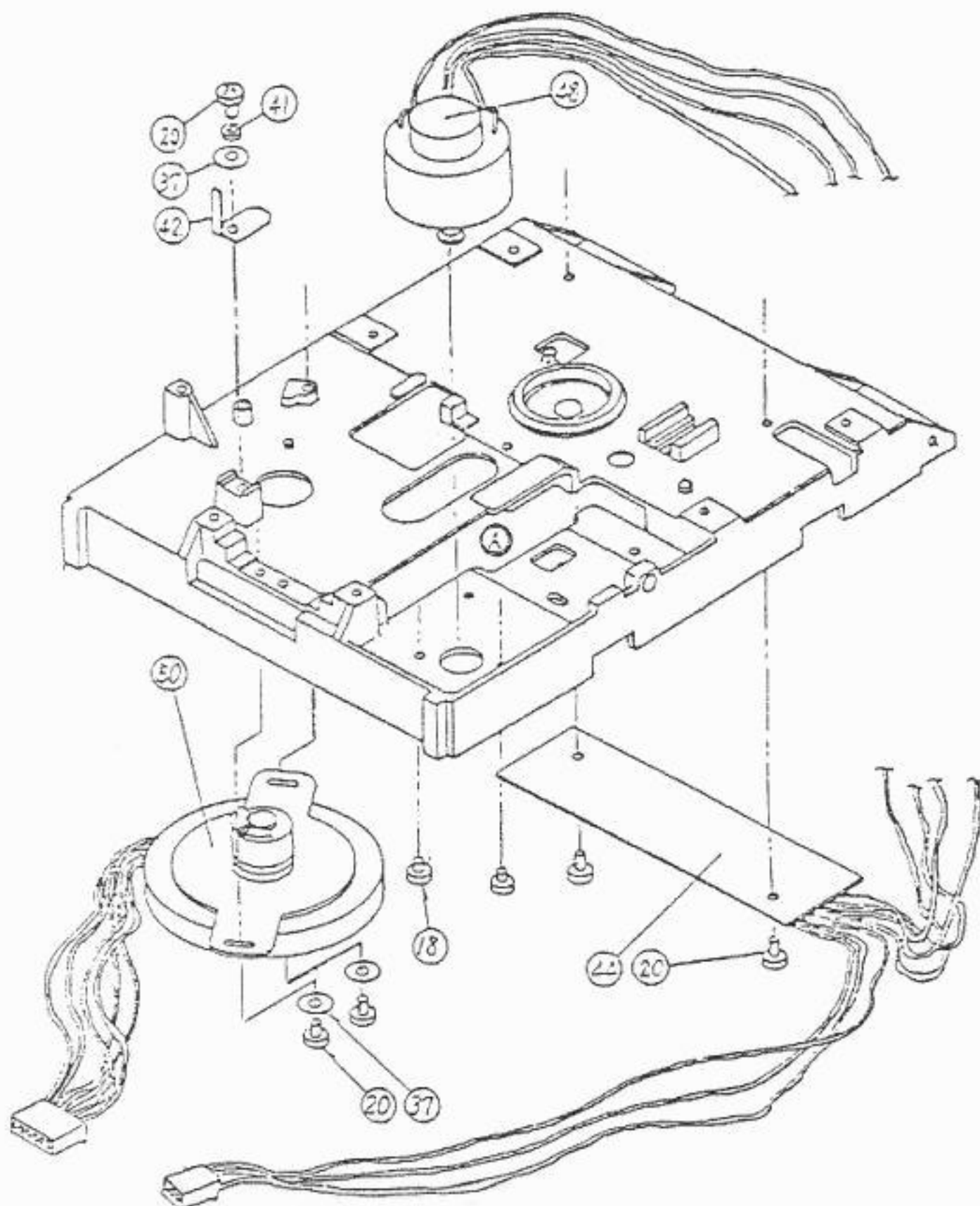
Part	Description
31	LED assembly
43	diskette guide
52	connector housing



- 2.3.9 Secure the D.C. motor from the reverse side of the housing assembly with two screws.
- 2.3.10 Put the motor control PCB into hole 'A' and secure it with two screws.
- 2.3.11 Secure the stepping motor with two screws.
- 2.3.12 Secure the carriage stopper with a screw.
- 2.3.13 Install the connector housing '52' into the hole 'B' and remove through hole 'C'.
- 2.3.14 Secure the two diskette guides '21' and '43' with two screws each.
- 2.3.15 Install the LED holder in the front panel.
- 2.3.16 Insert the LED assembly into the LED holder ring.
- 2.3.17 Install the led into the LED holder, then push the LED holder ring onto the LED holder.
- 2.3.18 Attach the front panel with four flush screws.
- 2.3.19 Secure the eject plate with a screw.
- 2.3.20 Wind the metal band around the tension pulley.
- 2.3.21 Insert the guide shafts into the head assembly. Install the tension pullet as shown in figure 8
- 2.3.22 Secure the guide shaft keepers by two screws each.
- 2.3.23 Wind the metal band around the stepper pulley and secure it with a screw to the stepper motor pulley.
- 2.3.24 Hook the spring to the tension pulley and install unit in the slot in the housing assembly.
- 2.3.25 Hook the opposite end of the spring to the housing assembly.
- 2.3.26 Fasten cable ties to the cables.
- 2.3.27 Secure the cable clamp with a screw as shown in FIG 8.
- 2.3.28 Secure the arm support assembly with a screw to the hub support.
- 2.3.29 Insert the hub shaft into the hub, the hub spring, the collet assy, the thrust washer, the collar, the clamp spring and two collars.
- 2.3.30 Insert the hub shaft into the frame and the hub support and fasten it at the E-washer.
- 2.3.31 Set the door assembly and the door spring at the hub frame.
- 2.3.32 Secure the pad plate assembly with a screw to the frame at the location shown in FIG 9
- 2.3.33 Secure the two hinge springs with two screws each.

FIG. 5

Part	Description
18	binder screw
20	binder screw
37	washer
41	spring washer
42	carriage stopper
44	motor control PCB
50	stepping motor assembly

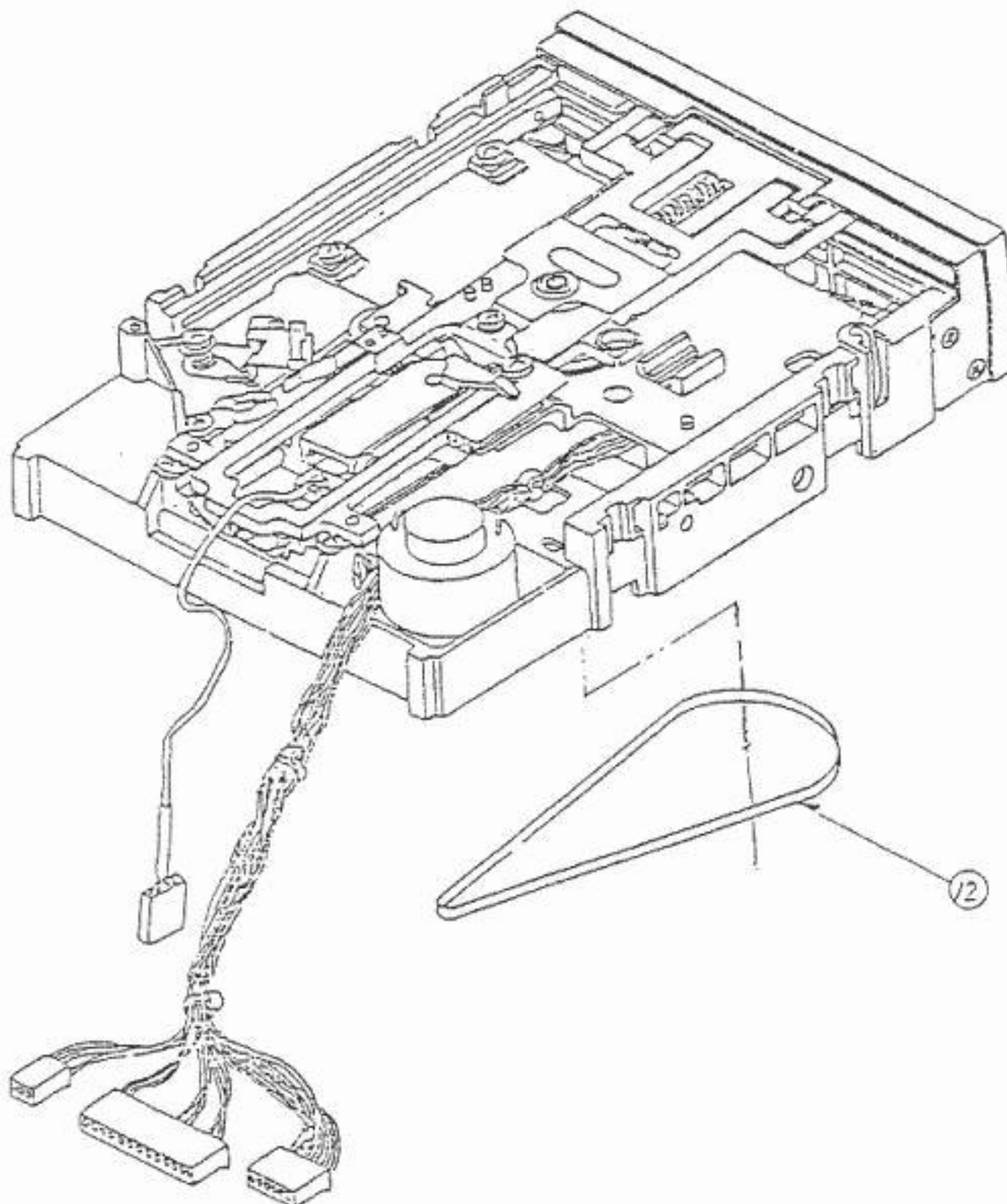


2.3.36 Place the belt over the D.C. motor pulley and partially on the spindle pulley.

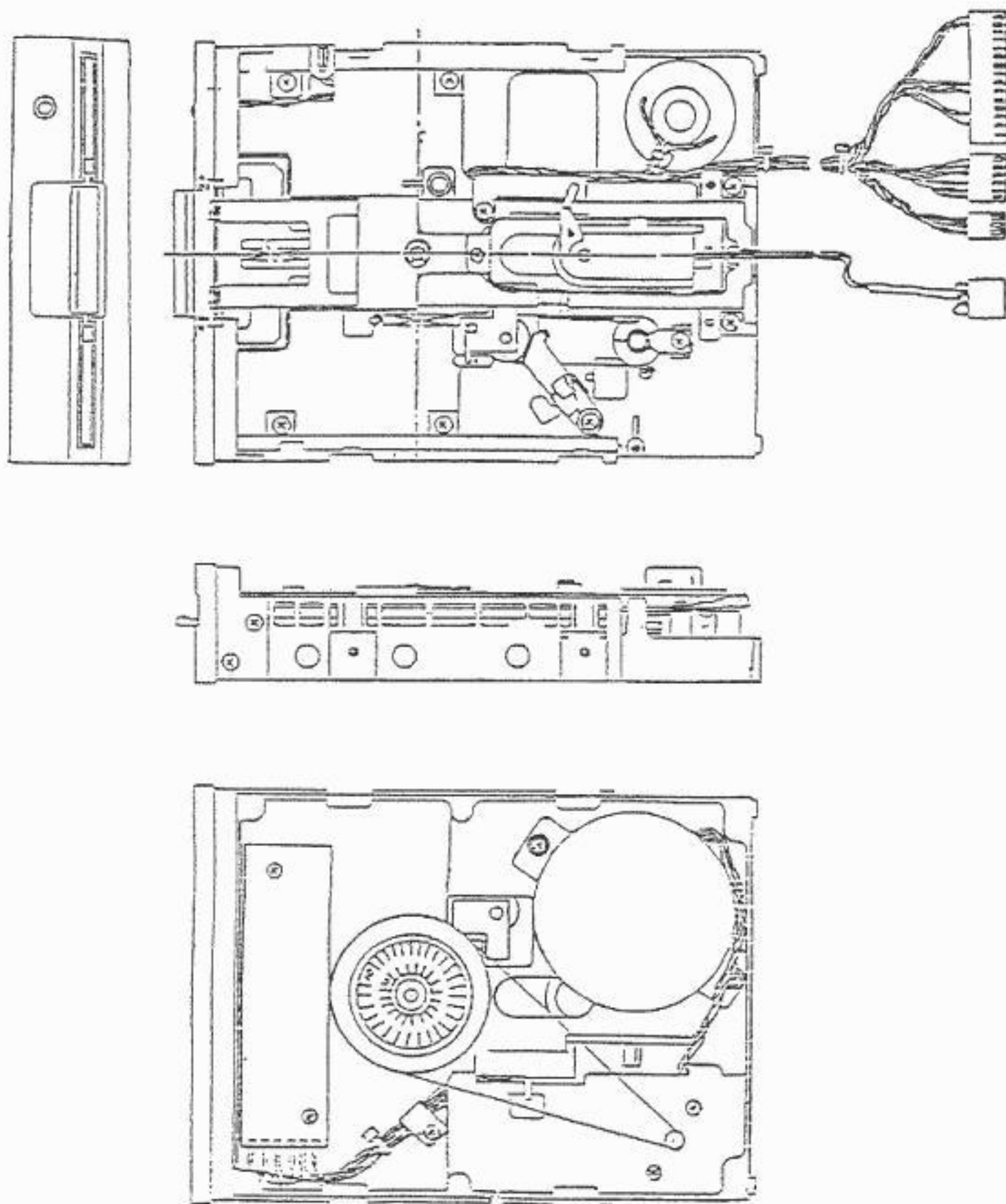
2.3.37 By turning the spindle pulley the rest of the belt will seat completely on the pulley.

2.3.38 FIG 10

Part	Description
12	drive belt



2.3.39 FIG 11; Completed Drive Mechanism



3.1 Description

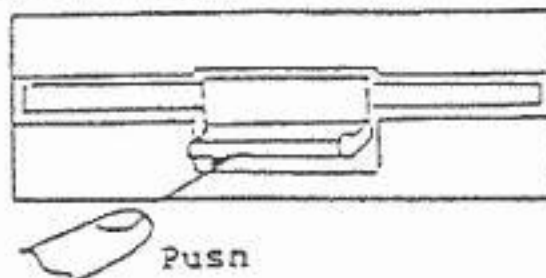
Since the disk drive is placed under direct control of the interface and power supply, no special procedure is required for starting and operation.

3.2 Operating procedure

Make sure that the power supply and I/O connector are connected, then insert the disk in accordance with the following procedure.

3.2.1 Inserting the media

- a) Apply DC voltage to the drive.
- b) Open the front door.



- c) With the index hole and write protect notch being placed on the left side of the jacket, push the media in, when the media is fully inserted the locking action can be felt.
- d) Push the door downward and close the door so that it is locked firmly

3.2.2 Extracting the media

- a) Open the front door. The media will pop out automatically to a position where you can extract it easily.
- b) For protection of the recorded data, the media should always be stored in its envelope.
- c) Close the door of the drive.

3.3 Media handling procedure

Since the media has been subjected to a write operation it naturally contains information, adequate attention must be paid to its handling.

In order to extend the life of the media and eliminate the causes of errors, it is best to take the following steps:

- a) When writing something on the jacket label of the media, do not use a ball point pen or pencil, use felt-tipped pens.
- b) Do not hold the edges of the media with paper clips or the like.
- c) Do not touch the media exposed in the slot of the jacket.
- d) Do not attempt to clean the media.
- e) Do not keep the media in the areas where there is a strong magnetic field.
- f) The diskette should be kept in its jacket.
- g) Special care should be exercised so that the media is kept free from liquid, dust, metal particles, etc.
- h) Take care not to exceed the following environmental conditions:

Temperature	10 to 51°C
Relative humidity	8 to 80 %

3.4 Seek error

Few seek errors will be experienced due to the low stepping rate, less than 12 msec/track. In case of a seek error, however, recalibration of track position can be performed. This can be done by repeatedly stepping the head towards track 0 untill track 0 status is detected.

3.5 Write error

In order to check the quality of the data, perform a read-after-write operation. When data can not be read, rewrite that track and sector once again.

When data can not be read after four such operations track is defective.

3.6 Read error

What happens quite often when performing a read operation is a soft error. A soft error is defined to be a read error which is recoverable by making ten or less read operations. However, in the event no recovery is made in ten operations, move one step from the track in the same direction as the previous step, then return one step. If this fails to read the data, this error is unrecoverable.

3.7 Description

Periodic maintenance is indispensable so that this type of peripheral equipment operates properly. It is particularly important to periodically clean the head and check the load pad. Repairs and adjustments should be made in accordance with the procedures below.

3.8 Head Cleaning

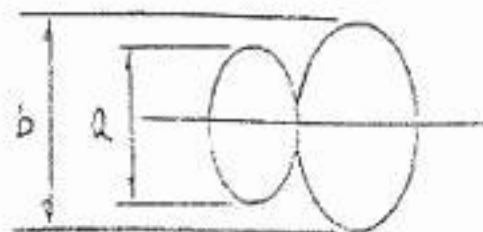
Check for excessive dust or magnetic oxide on the load pad. With the door open (do not move upper arm greater than what is provided by opening the front door) clean head with lint free cotton cloth or 'Q-tip' in 91% isopropyl alcohol. Wipe the head carefully to remove any dust and/or oxide.

3.9 Adjustment procedure

In case of a malfunction or parts replacement, make the following adjustments. In order to maintain the interchangeability of the media between drives it is desirable check each drive against a master alignment diskette.

3.9.1 Track adjustment (radial track)

- a) Connect I/O cable and restore the head to track 00.
- b) Insert a 48tpi alignment diskette and close the door.
- c) Connect two oscilloscope probes to pin 1 and pin 14 of UH6 (592), set oscilloscope to analog mode at 50mV/cm and 200 msec/div.
- d) Load the head and allow it to seek to track 16, check for cats eye wave form. When the cats eye lobe ratio is 70% or less, loosen the stepping motor mounting screws, turn the stepping motor to obtain the lobe ratio of 90% or less.
- e) After allowing the head to track 34, return it to track 16 and recheck the cats eye. If the ratio is correct tighten the stepping motor screws.



$$\frac{a}{b} \times 100 \geq 70$$

Cats eye lobe ratio

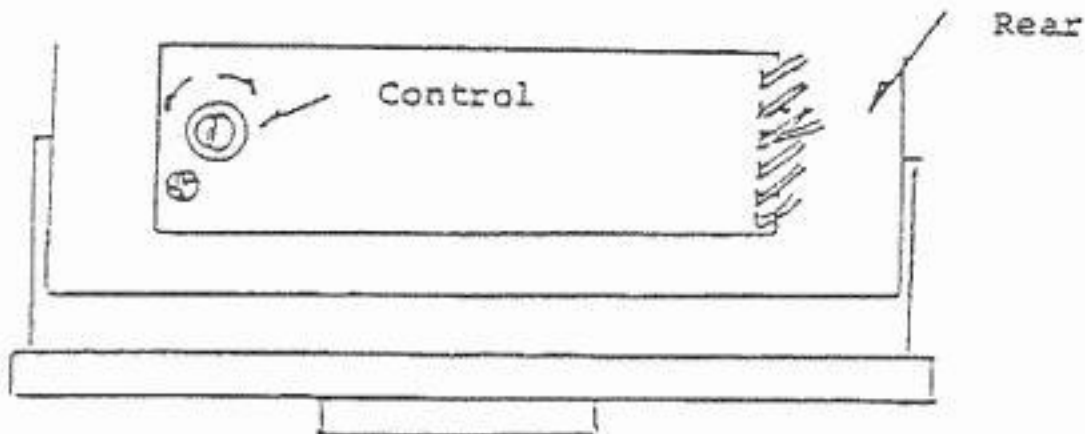
3.9.2 Track 00 adjustment

The drive is not provided with a track 00 sensor. To adjust, let the head over step in the track 00 direction and adjust the limiter position to obtain a clearance less than 0.25mm (0.01inches).



3.9.3 Speed control

Turn the variable resistor on the motor control board until the tachometer disk on the spindle pulley appears stationary when viewed with a fluorescent lamp.



QUANTITY REQD PER PART / DASH NO.		ITEM	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES
1	1	B	1540050	PC BOARD 238 x 155 x 1.6t			GLASS EPOXY. G-10
2	1						
3	1						
4	1						
5	1	C	1540049-01	SCHEMATIC DRAWING			USED LOGIC ARRAY. FCC (UL)
7	1	B	901435-01	IC MPS 6502	UC4		
8	1	B	901437-01	MPS 6522	UC2, UC3		
9	1	B	901229-03	2364-197	UB4		\$E000 ~ \$FFFF
10	1	B	325302-01	2364-130	UB3		\$C000 ~ \$DFFF
11	1	B	325572-01	LOGIC ARRAY 40 PIN DIP	UC1		
12	1	B	901521-01	74LS00	UC6		
13	1	B	901521-17	74LS42	UC7		
14	1	B	901522-01	7417	UD2		
15	1	B	901521-32	74LS86	UD3		
16	1	B	901522-06	7406	UB1, UD1		
17	1	B	901521-02	74LS04	UC5		
18	1	B	901521-30	74LS14	UA1		
19	1	B	901521-26	74LS193	UE6		
20	1	B	901521-54	74LS197	UD5		
21	1	B	901522-03	74177	UD5		SUBSTITUTE FOR ITEM 25.
22	1	B	901510-01	9602	UD4		
23	1	B	901523-04	LM311	UE4		
24	1	B	901523-08	IC NE592	UF3, UF4		
25	1	B	325502-03	IC TMH2016P	UB2		
26	1	B	325502-01	IC M58725P	UB2		SUBSTITUTE FOR ITEM 30.
27	1	B	901522-30	IC 7407	UD2		SUBSTITUTE FOR ITEM 19.
28	1						
29	1						
30	1						
31	1						
32	1						
33	1						
34	1						
35	1						
36	1						
37	1						

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TITLE: PCB ASSY. VIC-1541

DRAWN BY: J.T. Kudo
 CHECKED: C.W.D.

ENGR: J.D.
 DATE: 12/77
 APPR: T.H.

SIZE: B
 REV: C
 SHIT: 2/8

1540048

QUANTITY RECD PER PART / DASH NO.				ITEM		PART NUMBER	DESCRIPTION	REF DES	QTY	NOTES
				1	2					
				38	B	902671	TRANSISTOR NPN 2SC945	Q2-Q7		
				39		902693-01	2SC1815	Q2-Q7		SUBSTITUTE FOR ITEM 38.
				40		902679	2SD467	Q8-Q11		
				41		902682	NPN 2SC2120	Q8-Q11		SUBSTITUTE FOR ITEM 40.
				42		902720	PNP 2SA673	Q1		
				43		902717	2SA733	Q3-Q6		
				44	B	902744-01	TRANSISTOR PNP 2SA1015	Q3-Q6		SUBSTITUTE FOR ITEM 43.
				45						
				46						
				47						
				48						
				49						
				50						
				51						
				52	B	900750-02	DIODE RECTIFIER IN4002	CR2,4,8-11		
				53		900850-05	SIGNAL WG713C	CR6,7,12,14-18		
				54		900850-01	SIGNAL IN4148	CR6,7,12,14-18		SUBSTITUTE FOR ITEM 53.
				55		325505-01	ZENER 3.3V 500mW ±5%	CR5		HE3C-2
				56		325505-02	3.3V 500mW ±5%	CR5		HE4A-1 SUB. FOR ITEM 55.
				57		900948-06	3.3V 500mW ±5%	CR5		IN3226B SUB. FOR ITEM 55.
				58		325506-01	5.1V 500mW ±5%	CR13		HE5C-2
				59		900948-11	ZENER 5.1V 500mW ±5%	CR13		IN5231 SUB. FOR ITEM 58.
				60	B	900756-01	DIODE BRIDGE 1.5A 50V	CR1,CR3		KBP-005
				61						
				62						
				63						
				64	B	325566-01	CRYSTAL MODULE 16 MHz 50ppm	Y1		
				65	B	325566-02	CRYSTAL MODULE 16 MHz 100ppm	Y1		SUBSTITUTE FOR ITEM 64.
				66						
				67						
				68						
				69	B	325513-01	COIL, INDUCTOR 2.2 μH	L1		
				70	B	325513-02	COIL, INDUCTOR 22 μH	L9, L10		
				71	B	325513-03	COIL, INDUCTOR 100 μH	L8, L11, L12		
				72						
				73						
				74						

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PCB ASSY. VIC-1541

DRAWN BY: T. J. H. CHKD:

DATE: 11/14/82

ENGR: J. H. APPR: J. H.

DATE: 12/17/82 SIZE: B

REV: C 1540048

REV: 3/8

QUANTITY REQD PER PART / DASH NO.		QTY	8	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES
1	76	B	901528-04	VOLTAGE REGULATOR 12V.1.5A	VR1		LM340-12	T0-3
1	76	B	901528-03	VOLTAGE REGULATOR 5V.1.2A	VR2		LM340-5	T0-3
2	79	B	904914	INSULATION MYLAR T0-3				
5	80	B	325551-01	INSULATION SILICONE T0-3				SUBSTITUTE FOR ITEM 79.
2	88	B	903361	CONNECTOR, PIN 6P	P2, P3			
4	87	B	904150-06	SOCKET IC LOW PRO 40 PIN				
3	88	B	904150-03	SOCKET IC LOW PRO 24 PIN				
1	96	B	251065-04	HEADER ASSY. 2.5 PITCH	PB		MOLEX 5048-04 AG	
1	97		325562-06	6 PIN	P7		3022-06A	
1	98		325562-15	15 PIN	P6		3022-15A	
2	99		325562-03	3 PIN	P4, P5		3022-03A	
1	100	B	903316-04	HEADER ASSY. 3.96 PITCH	P1		MOLEX 5271-04A	
101								
102								
103								
104								
105								
106								
107								
108								
109								
110								
111								

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PCB ASSY. VIC-1541

DATE 10/11/83
DRAWN BY: 7.7.83
CHKD:

DATE 10/11/83
ENGR: 7.7.83
APPR: 7.7.83

SIZE B

REV C
1540048

SHT 4/8

QUANTITY REQD PER PART / DASH NO.				ITEM	QTY	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES
				112	B	900301-04	CAPACITOR ELECT. 220µF/10V	C13		
				113		900101-45	6800µF/25V	C17		
				114		900101-32	4700µF/16V	C16		
				2115		900100-33	47µF/16V	C2,C5		
				2116		900100-32	ELECT. 1µF/25V	C1,C4		
				1117		900402-15	TANTALIUM 10µF/25V	C15		
				1118		900402-11	TANTALIUM 3.3µF/25V	C44		
				1119		900010-52	CERAMIC 150µF/50V	C31		±5%
				2120		-53	330µF/50V	C32,C36		±5%
				3121		-54	680µF/50V	C45,C33,C34		±5%
				1122		-25	1000µF/50V	C41		
				2123		-20	0.1µF/50V	C3,6-10		14,18,19,20,22-30,35,40,43,47,48
				2124		900010-14	CERAMIC 0.022µF/50V	C39,C42		
				1125		900100-40	ELECT. 100µF/16V	C46		
				2126		900402-17	TANTALIUM 0.47µF/25V	C37,C38		
				1127		-08	4.7µF/25V	C21		
				1128		900402-14	TANTALIUM 1µF/16V	C11		
				1129	B	900465-02	CAPACITOR CERAMIC 0.033µF/25V	C12		
				130						
				131						
				132						
				133						
				1134	B	901550-56	RESISTOR CARBON 1/4W ±5% 47Ω	R1		
				2135	B	901550-108	RESISTOR CARBON 1/4W ±5% 360Ω	R14,R24		
				4136		-89	150Ω	R17,R45,R46		
				4137		-52	220Ω	R4,16,36,55		
				2138		-14	330Ω	R3,R23		
				6139		-58	470Ω	R20,22,30,27,38,41		
				1140		-38	510Ω	R27		
				6141		-31	680Ω	R31,R47,R50		
				6142		-01	1KΩ	R2,5,6,7,8,R43		
				3143		-53	2KΩ	R9,10,26		
				6144		-18	2.2KΩ	R11,19,21,32-34		
				1145		-69	1.5KΩ	R40		
				4146		-12	22KΩ	R12,35,39,52		
				2147	B	901550-07	RESISTOR CARBON 1/4W ±5% 100KΩ	R25,R44		
				143						

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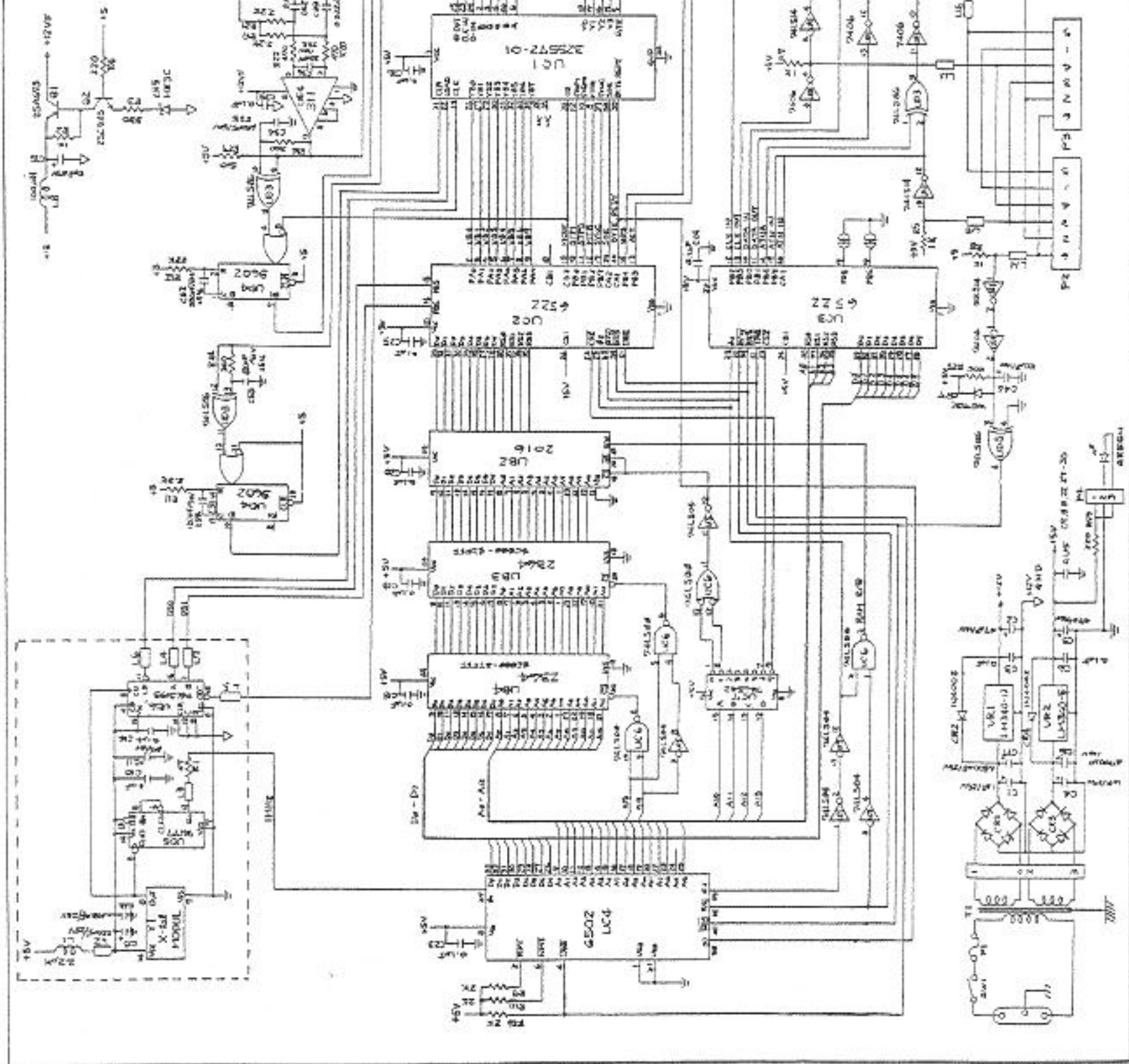
TITLE: PCB ASSY. VIC-1541

DATE: 11/1/82
 ENGR: J. J. Kucuk
 DRAWN BY: J. J. Kucuk
 CHKD: J. J. Kucuk

SIZE: B
 1540048

REV: C
 5/8

REVISIONS			DATE	APPROVED
LTR	ZONE	DESCRIPTION		
A		PRODUCTION RELEASE		
B		REV PER ECO 030025	10/1/11	J. J. J.



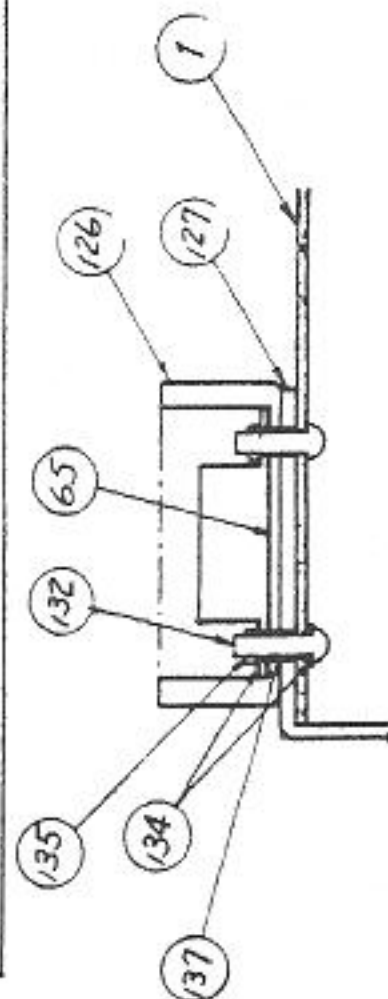
REVISIONS			DATE	APPROVED
LTR	ZONE	DESCRIPTION		
A		PRODUCTION RELEASE		
B		REV PER ECO 030025	10/1/11	J. J. J.

REVISIONS			DATE	APPROVED
LTR	ZONE	DESCRIPTION		
A		PRODUCTION RELEASE		
B		REV PER ECO 030025	10/1/11	J. J. J.

QUANTITY REQD PER PART / DASH NO.		P E	Q TY	PART NUMBER	DESCRIPTION	REF. DES	Q TY	NOTES
		01		902671	TRANSISTOR NPN 2SC945	Q2, Q3		
		02	2	902693-01	TRANSISTOR NPN 2SC1815	Q2, Q3		SUBSTITUTION FOR ITEM 37
		03	5	902679	TRANSISTOR NPN 2SD467	Q4-Q7		
		04	4	902682	TRANSISTOR NPN 2SC2120	Q4-Q7		SUBSTITUTION FOR ITEM 39
		05	5	902720	TRANSISTOR PNP 2SA673	Q1		
		06	1	902717	TRANSISTOR PNP 2SA733	Q8-Q11		
		07	4	902744-01	TRANSISTOR PNP 2SA1015	Q8-Q11		SUBSTITUTION FOR ITEM 42
		08	5	901522-30	IC 7407	UG4		SUBSTITUTION FOR ITEM 33
		09	5					
		10	6	900750-02	DIODE, SIGNAL 1N4002	CR2, 4, 13-16		
		11	8	900850-05	SIGNAL WG 713C	CR6-11, 17, 18		
		12	5	900850-01	SIGNAL 1N4148	CR6-11, 17, 18		SUBSTITUTION FOR ITEM 47
		13	1	325505-01	RESISTOR 3.3V 500mW ±5%	CR5		HZ3C-2
		14	5	325505-02	RESISTOR 3.3V 500mW ±5%	CR5		HZ4A-1 SUB. FOR ITEM 49
		15	5	900948-06	RESISTOR 3.3V 500mW ±5%	CR5		IN3226B SUB. FOR ITEM 49
		16	1	325506-01	RESISTOR 5.1V 500mW ±5%	CR12		HZ5C-2
		17	5	900948-11	RESISTOR 5.1V 500mW ±5%	CR12		IN5231 SUB. FOR ITEM 52
		18	1	900756-01	BRIDGE 1.5A 50V	CR1		KBP-005
		19	1	900755-02	DIODE, BRIDGE 4A 50V	CR3		KBL-02
		20	1					
		21	1	900556-02	CRYSTAL 16MHz	Y1		
		22	1					
		23	1	325513-01	COIL, INDUCTOR 2.2μH	L1		
		24	2	325513-02	COIL, INDUCTOR 22μH	L8, L11		
		25	3	325513-03	COIL, INDUCTOR 100μH	L7, L9, L10		
		26	1					
		27	1	901528-04	VOLTAGE REGULATOR 12V 1.5A	VR1		LM340-12
		28	1	901528-01	VOLTAGE REGULATOR 5V 3A	VR2		LM323
		29	2	904914	INSULATION MYLAR 70-3			ATTACHED WITH VOLT REGULATOR
		30	5	325551-01	INSULATION SILICONE 70-3			SUBSTITUTION FOR ITEM 65.
		31						
		32	2	903361	CONNECTOR, DIN 6PIN	P3, P4		HASHIDENKI TCS4460-01-101
		33						
		34	3	904150-06	SOCKET IC LOW PRO. 40PIN			
		35	2	904153-03	SOCKET IC LOW PRO. 24PIN			
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c b m ENGINEERING OSAKA JAPAN				TITLE: PCB ASSY VIC-1540			DATE: 1/1	
				DRAWN BY: C.M.D. & T. J. J. 8/12/81			DATE: 1/1	
				APPROV: 1540001-			DATE: 1/1	
				B			DATE: 1/1	
				1540001-			DATE: 1/1	
				307			DATE: 1/1	

QUANTITY REQD PER PART / DASH NO.		QTY	PART NUMBER	DESCRIPTION	REF. DES	QTY	NOTES
1	1	1	325514-04	HEADER ASSY 2.5 PICH RANG. 4PIN	P2	1	MOLEX 5049-04AG
1	1	1	325515-06	6PIN	P7	1	3094-06A
1	1	1	325515-15	15PIN	P6	1	3094-15A
2	2	2	325515-03	2.5 PICH RANG. 3PIN	P5, P8	2	3094-03A
1	1	1	903316-04	HEADER ASSY 3.96 PICH 4PIN	P1	1	MOLEX 5271-04A
1	1	1	900100-03	CAP. ELECTROLYTIC 220 μ F/25V	C65	1	
1	1	1	900101-44	CAP. ELECTROLYTIC 1000 μ F 16V	C52	1	AXIAL LEAD ϕ 22x.52
1	1	1	900101-45	6800 μ F 25V	C51	1	AXIAL LEAD ϕ 22x.52
2	2	2	900100-33	47 μ F 16V	C2, C5	2	
2	2	2	900100-32	ELECTROLYTIC 1 μ F 25V	C1, C4	2	
1	1	1	900402-15	TANTALUM 10 μ F 25V	C12	1	
1	1	1	900402-11	TANTALUM 3.3 μ F 25V	C23	1	
1	1	1	900010-51	CERAMIC 48PF 50V	C10	1	
1	1	1	900010-52	150PF 50V	C33	1	$\pm 5\%$
2	2	2	900010-53	330PF 50V	C28, C49	2	$\pm 5\%$
3	3	3	900010-54	680PF 50V	C16, C29, C50	3	$\pm 5\%$
1	1	1	900010-25	1000PF 50V	C26	1	
40	40	40	900010-20	0.1 μ F/50V	C3, 6, 9, 11, 13, 14, 17-22	40	28, 29-32, 34-48, 53-65, 67, 68, 61
2	2	2	900010-14	CERAMIC 0.022 μ F 50V	C38, C59	2	
1	1	1	900100-40	ELECTROLYTIC 100 μ F 16V	C56	1	
2	2	2	900402-17	CAP. TANTALUM 0.47 μ F 16V	C15, C24	2	$\pm 20\%$
1	1	1	900402-08	CAP. TANTALUM 4.7 μ F 25V	C62	1	
1	1	1	900402-14	CAP. TANTALUM 1 μ F 10V	C63	1	
1	1	1	900465-02	CAP. CERAMIC 0.033 μ F 25V	C64	1	
2	2	2	901550-108	RESISTOR, CARBON $\frac{1}{4}$ W 5% 360 Ω	R25, R30	2	
1	1	1	901550-56	RESISTOR, CARBON $\frac{1}{4}$ W 5% 47 Ω	R3	1	
4	4	4	901550-89	RESISTOR, CARBON $\frac{1}{4}$ W 5% 150 Ω	R18, R19, R35, R36	4	
4	4	4	901550-52	220 Ω	R4, R6, R7, R45	4	
5	5	5	901550-14	330 Ω	R1, R2, R5, R20, R37	5	
6	6	6	901550-58	470 Ω	R27, R28, R32, R33, R35, R37	6	
1	1	1	901550-38	510 Ω	R24	1	
5	5	5	901550-31	680 Ω	R9, R39-R42	5	
8	8	8	901550-01	1 K Ω	R6, R11, R31-34, R44, R45	8	
4	4	4	901550-53	2 K Ω	R21-R23, R38	4	
6	6	6	901550-18	RESISTOR, CARBON $\frac{1}{4}$ W 5% 2.2 K Ω	R2, R10, R24, R31, R32, R36	6	
TOTAL:			PCB ASSY VIC-1540				
c b m ENGINEERING OSAKA JAPAN			DRAWN BY: <i>P. Takashi</i>		DATE: 1/1	DATE: 1/1	DATE: 1/1
			CHKD: <i>P. Takashi</i>		DATE: 1/1	DATE: 1/1	DATE: 1/1
			APPR: <i>P. Takashi</i>		DATE: 1/1	DATE: 1/1	DATE: 1/1
			SIZE: B		DATE: 1/1	DATE: 1/1	DATE: 1/1
			1540001-		DATE: 1/1	DATE: 1/1	DATE: 1/1
			4 of 7		DATE: 1/1	DATE: 1/1	DATE: 1/1

LTR	ZONE	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		<i>[Signature]</i>



L&L OIL SERVICE 8000000 TOLUENE ON: SPECIALS		DRAWN BY: <i>T. Takemoto</i> DATE: <i>8/11/81</i>		C b m OSAKA JAPAN	
MATERIAL:		USED ON: VIC-1540 VIC-1541		PCB ASSY. VIC-1540	
TO:		NEXT ASSY		SIZE: B	
FROM:		VIC-1540 VIC-1541		REV E	
SCALE:		1/4" = 1"		SHEET 6 OF 7	

PART NO.	DESCRIPTION	REV	DATE	BY	REVISION	DATE	BY	REVISION
1540002-01	POWER SUPPLY ASSY VIC-154G UL	A	7/21/81		PRODUCTION RELEASE			67
		B			CHANGED FILTER POWER CONNECTOR FOR CSA (ITEM 24 WAS ITEM 23)			77
		C	8/24/82		CHANGED FILTER POWER CONNECTOR FOR FCC (ITEM 25 WAS ITEM 23)			77
		D	9/2/82		CHANGED ACCESSORY OF TRANSFORMER			77
		E	9/17/82		CHANGED SCREW TO H3-6 FROM H3-8.			77
		F	10/7/82		ADDED DASH 06 THRU 10 AND ITEM 21.			77
					ADDED ITEM 8, 9 AND 63.			77
					ADDED SHEET 5 OF 5.			77
		G	2/8/83		REVISED PER ECO 830060			90
		H	3/5/83		REVISED PER ECO 830101			90

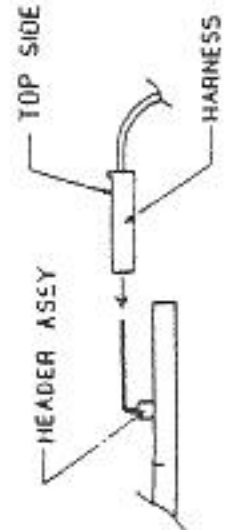
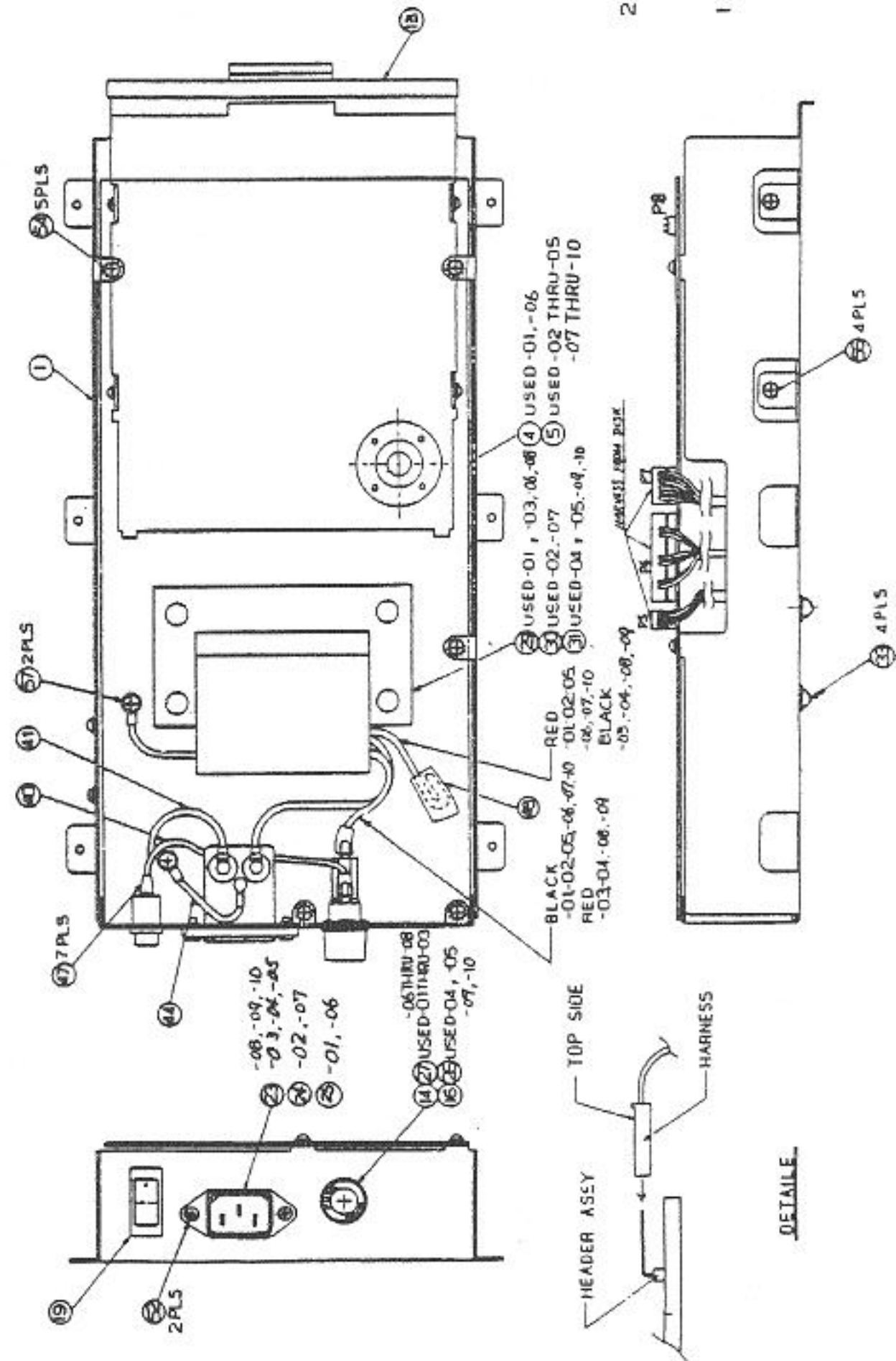
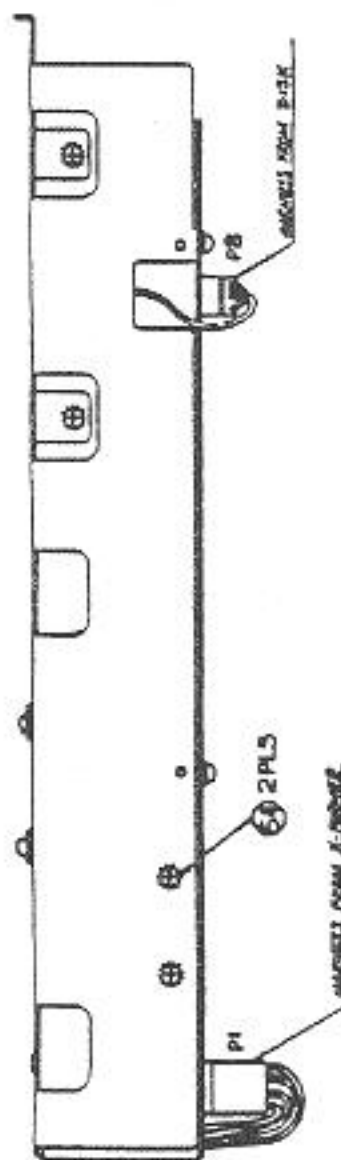
VIC-154I UL

-06

4. NO CHANGE QTY FOR ITEM 54 IF USED ITEM 6 OR 7.
3. USE ONLY WHEN USED ITEM 8 OR 9.
2. IF ITEM 8 OR 9 ARE USED THEN QTY FOR ITEM 54 WILL CHANGE FROM 7 TO 9 PCS AND USED WITH ITEM 63.
1. SHEET 4 & 5 OF 5 ARE D-SIZE ASSY DWG. NOTES.

c b m ENGINEERING OSAKA JAPAN	TITLE POWER SUPPLY ASSY VIC-154G	DRAWN BY Y. TAKAGI	DATE	SIZE	SHEET 1 of 5
			1/1	B	
		CHKD BY Y. TAKAGI	DATE 1/1		

REVISIONS		
LTR	ZONE	DESCRIPTION
		SEE SHEET 1
		DATE APPROVED 3/24/66
		BY C.T.



DETAILS

2. ALL LEADS WILL HAVE A MINIMUM OF ONE WRAP AROUND TERMINALS PRIOR TO SOLDERING.
1. ALL OF HARNESS EXCEPT P1 SHOULD BE CONNECTED TO EACH HEADER ASSY (SEE DETAIL).

POWER SALLY ASSY	
15400002	17

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